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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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James Daniel Asbury

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EXAMINER

SINGH-PANDEY, ARTI R

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

06/09/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/567,892	Applicant(s) ASBURY, JAMES DANIEL	
	Examiner Arti Singh-Pandey	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The Examiner has carefully considered Applicant's amendments and accompanying remarks. All previously made rejections are now withdrawn and a new rejection is applied below which addresses Applicant's amended weight percentage of the fiberglass and the additional layers.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2003/0141005 issued to Donatti et al. in view of US 2008/0135167 A1 (relying on the date of 10/352803 now US patent 7297390 January 28, 2003 or it's provisional application of 01/28/02).

4. US 2003/0141005 issued to Donatti et al. discloses headliners for vehicle made with the same structure and chemistry as that which Applicant desires.

This invention relates to headliner components for vehicles, and in particular to headliner components comprising an impregnated polyurethane substrate and at least one multi-layered laminate for uniting the substrate to a decorative material. This invention further relates to a method of making the headliner components 0003.

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Paragraphs 0022-0030 describe the equivalent layers and are provided verbatim for Applicant.

Referring now more particularly to the drawings, a headliner of an embodiment of this invention is shown in FIG. 1 and generally designated by reference numeral 100. The headliner 100 includes a relatively thick rigid substrate 102, which can be a fiberglass-impregnated polymer-based material, such as a fiberglass-impregnated polyurethane. *The Examiner is equating this layer to be equivalent to Applicant's reinforcement layer.* The surface of the substrate 102 facing towards the vehicle interior compartment (not shown) is known in the industry as the A-side surface, whereas the opposite surface of the substrate 102 facing away from the vehicle interior when the headliner 100 is mounted is known as the B-side surface. Generally, the thickness of the impregnated substrate 102 is, for example, in a range of from about 4 mm to about 24 mm, and more preferably is from 4 mm to 18 mm. Representative densities for the impregnated substrate 102 range from 48 kg/m.³ to 160 kg/m.³ (3.0 to 10.0 lbs/ft.³).

[0023] Positioned on the A-side surface of the substrate 102 is a multi-layered laminate 120, which in the illustrated embodiment is a tri-layered laminate. The multi-layered laminate 120 is interposed between the substrate 102 and a decorative cloth material 106 having an optional foamed backing 108. The decorative cloth material 106, which can be made of, by way of example, nylon, rayon, polyester, cotton, or combinations thereof, is exposed to the vehicle

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interior compartment and conceals the substrate 102 and laminate 120 from view.

The thickness of the tri-layered laminate 120 can be in a range of from 0.025 mm to 0.051 mm (i.e., 1.0 mils to 2.0 mils, or 0.0010 inches to 0.0020 inches), preferably 0.038 mm to 0.051 mm (i.e., 1.5 mils to 2 mils, or 0.0015 inches to 0.0020 inches) .

[0024] The first layer of the tri-layered laminate 120 is an adhesive layer 122, which adheres the multi-layered laminate 120 to the decorative cloth 106 and its optional foamed backing 108. In a preferred embodiment, the adhesive layer 122 is ethylene-vinyl acetate, although other less preferred adhesives, such as polyethylene, may be used. Generally, the deposition of the adhesive layer 122 is controlled to produce a thickness which, when measured as concentration over a cross section of the adhesive layer 122, is in a range of from 30 g/m.^{sup.2} to 40 g/m.^{sup.2}. The ethylene-vinyl acetate layer 122 is preferably corona treated, e.g., flame treated or electrically or electrostatically charged, to have a dyne level from 46 to 55, preferably from 47 to 49 dynes. The adhesive layer 122 should have a softening temperature lower than the temperature at which the decorative cloth material 106 thermally degrades, so that the adhesive layer 122 can be softened or melted without discoloring the decorative cloth material 106. Generally, softening temperatures of from about 99.degree. C. (210.degree. F.) to about 104.degree. C. (220.degree. F.) are preferred for the adhesive layer 122.

[0025] The second layer of the laminate 120 is a barrier layer 124 that functions to prevent the polyurethane and polyurethane precursors from bleeding

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through the laminate 120 during the molding process, such as compression molding, in which the laminate 120 is placed in a mold die prior to injection of polyurethane precursors for forming the substrate 102. The barrier layer 124 is preferably a film comprising polyethylene, preferably with pores not greater than 25 microns. Other materials, such as polypropylene, polyethylene-polypropylene copolymer films, and other olefin polymers, copolymers, and terpolymers can be used, so long as the materials can provide the desired barrier function at a suitable thickness while exhibiting acceptable molding, fluidity and softening point. Generally, the deposition of the barrier layer 124 is controlled to produce a thickness which, when measured as concentration over a cross section of the barrier layer 124, is in a range of from 10 g/m.² to 20 g/m.², preferably 16 g/m.². The elongation of the barrier layer 124 is preferably at least 40%.

[0026] The third layer of the laminate 120 is a shape-retaining layer 126 having sufficient strength to prevent the configuration of the shape-retaining layer 126 from being influenced by pores in the substrate 102. The shape-retaining layer 126 thereby prevents the decorative cloth material 106 from conforming to pores in the A-side surface of the substrate 102 so that the decorative cloth material 106 is free of pits and dimples. Generally, the deposition of the shape-retaining layer 126 is controlled to produce a thickness which, when measured as a concentration over a cross section of the shape-retaining layer 126, is in a range of from 30 g/m.² to 40 g/m.².

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The shape-retaining layer 126 preferably comprises a spun bond (or "non-woven") polypropylene or polyester. As referred to herein, spun bond or non-woven materials are characterized by an absence in distinction of directional properties. As with the barrier layer 124, the shape-retaining layer 126 preferably has an elongation of at least 40%. Antioxidants can be added to the barrier and shape-retaining layers 124 and 126.

[0027] The shape-retaining layer 126 of the laminate 120, which is preferably disposed closest to the substrate 102, is primarily responsible for imparting the laminate 120 with most of its physical properties, although the barrier layer 124 has sufficient influence as to cause distinctions in directional properties of the laminate 120. Desirably, the laminate 120 has a machine tensile strength and cross-machine tensile strength (ASTM D 882-83) in ranges of 2700-2900 psi and 2400-2600 psi, respectively, and more preferably 2800 psi and 2500 psi, respectively. The elongation (ASTM D 882-89) of the laminate 120 is preferably 40-60%, with the machine elongation preferably being 45% and the cross-machine preferably being 56%. The tear strength (ASTM D 1922-67) is preferably 512. \pm .50 grams/16 plies along the machine direction and 316. \pm .50 grams/16 plies along the cross-machine direction.

[0028] It should be understood that additional layers, including more than one of the layers 122, 124, and 126, can be included in the multi-layered laminate 120, so long as the additional layers do not interfere with the above-discussed functions of the layers 122, 124, and 126.

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[0029] In accordance with a preferred embodiment, the laminate 120 can be prepared as follows. The non-woven shape-retaining layer 126 is extruded at approximately 0.13 mm to 0.15 mm (5 to 6 mils, or 0.005 inch to 0.006 inch) thickness onto the barrier layer 124. The layers 124 and 126 are then run through a nip roller to achieve a desired film thickness of approximately 0.025 mm to 0.051 mm (i.e., 1.0 mils to 2.0 mils, or 0.0010 inches to 0.0020 inches), thus forming a bi-laminate. The layers 124 and 126 are then passed through a series of chiller rollers, followed by a series of heater elements to warm the bi-laminate. After the bi-laminate is formed, the adhesive layer 122 is fed onto the bi-laminate of layers 124 and 126 then passed with layers 124 and 126 through a series of hot rollers which compress and laminate the adhesive film 122 to layer 124 to make the tri-laminate 120. The tri-laminate 120 is cooled and, optionally, cut and/or rolled for temporary storage.

[0030] Positioned on the opposite side of the substrate 102, also known in the industry as the "B-side" of the substrate 102, is a barrier layer 110. In a preferred embodiment, the barrier layer 110 is a Rochelle (polyethylene copolymer) film, which is available from Rochelle Plastics of Rochelle, Ill. and has a Tg of 83.degree. C. It is also within the scope of this invention to use other materials as the barrier layer 110, including the use of the above-described multi-layered laminate as the barrier layer 110. A vibration-dampening layer 112 is optionally interposed between the barrier layer 110 and the vehicle frame (not shown) to minimize rattles and squeaks

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cause by relative movement between the headliner 100 and the vehicle frame. A representative vibration-dampening layer 112 is flame laminate polyether grade 11330XXX, available from General Foam of East Rutherford, N.J. As referred to herein, the vibration-dampening layer 112 also encompasses a scrim material, such as one having either (a) a bilaminate structure composed of a non-woven polypropylene film and a film of polypropylene, polyethylene, or polypropylene-polyethylene copolymer or (b) a trilaminate composed of two non-woven polypropylene films sandwiching a film of polypropylene, polyethylene, or polypropylene-polyethylene copolymer. The thickness of the non-woven polypropylene preferably is controlled to provide about 33.9 grams/m.² (1 ounce/yard²) of material, whereas the polyethylene and/or polypropylene is about 35.9 grams/m.² (30 grams/yard²).

Donatti et al. teach all the required layers but lack the teaching of weight percentages that applicant desires. This is remedied by Simmons et al.

Simmons et al disclose making a composite structure (abstract). The composite structure includes a first reinforcement layer made of a polymer and positioned above the structural core and bonded thereto. In paragraph 0044 the instant patent teaches that the fibers may be fiberglass, PET, polypropylene, polyethylene terephthalate, HDPE, and natural fibers. Simmons in the same paragraph teaches that the actual measurements and properties of the structural core 20 are driven by various design parameters such as mass, compressive strength, acoustical behavior, environmental resistance, core target cost at nominal thickness, etc. Thus, by varying the thickness, geometry, and material of the structural core 20, one can optimize the various design

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parameters associated therewith. Therefore, a person having ordinary skill in the art at the time the invention was made would have found it obvious to have altered the weight percentages to make the headliner lighter in weight.

5.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arti Singh-Pandey whose telephone number is 571-272-1483. The examiner can normally be reached on M-R 8-6.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Arti Singh-Pandey/
Primary Examiner
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